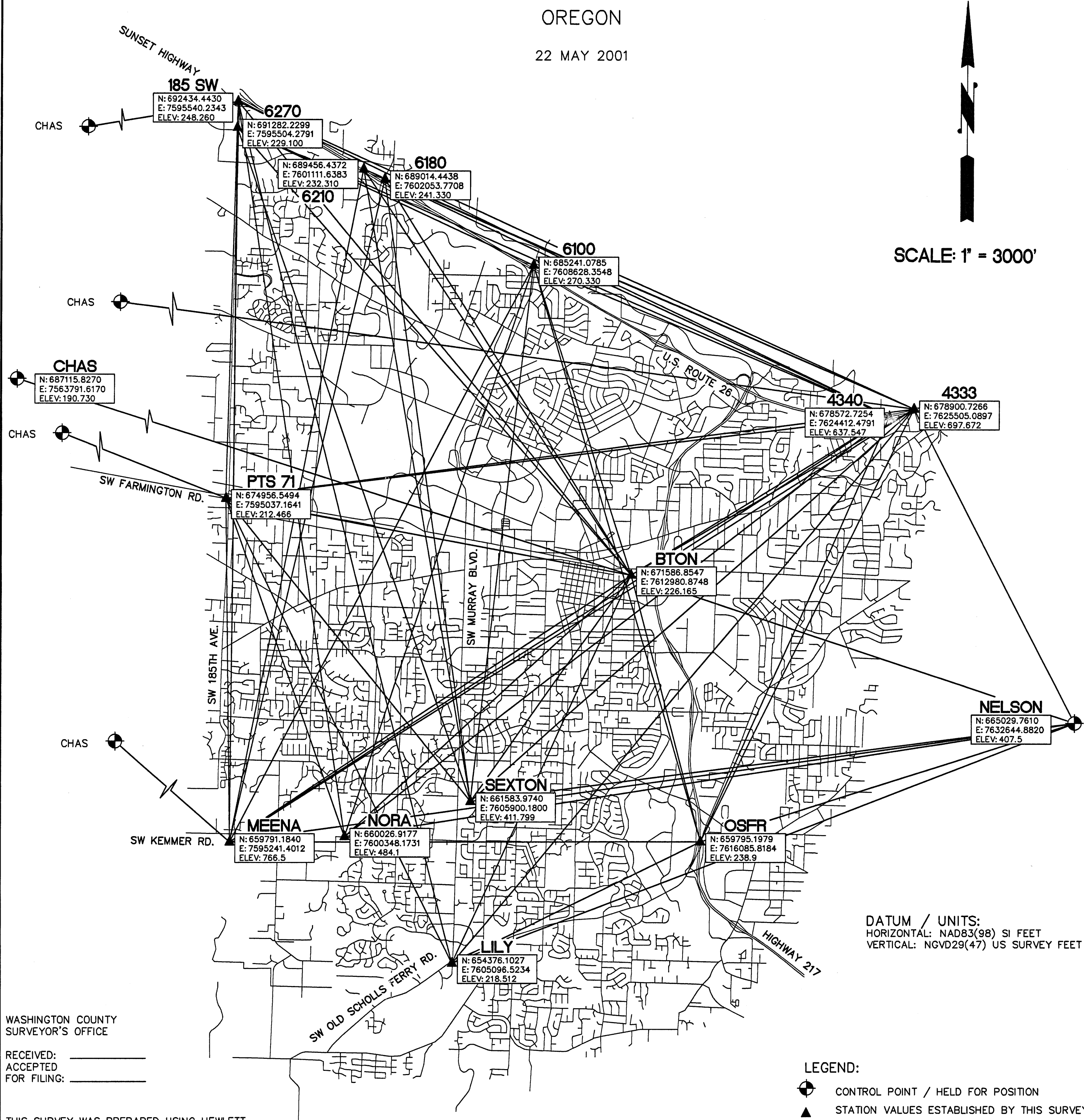


RECORD OF SURVEY
FOR THE
CITY OF BEAVERTON
ESTABLISHING A
PRIMARY CONTROL NETWORK

SITUATED IN THE
SOUTH HALF OF TOWNSHIP 1 NORTH, RANGE 1 WEST
AND IN
TOWNSHIP 1 SOUTH, RANGE 1 WEST
WILLAMETTE MERIDIAN
OREGON

22 MAY 2001



DATUM / UNITS:
HORIZONTAL: NAD83(98) SI FEET
VERTICAL: NGVD29(47) US SURVEY FEET

LEGEND:
● CONTROL POINT / HELD FOR POSITION
▲ STATION VALUES ESTABLISHED BY THIS SURVEY

THIS SURVEY WAS PREPARED USING HEWLETT
PACKARD PRODUCT NO. 51645A INK ON
CONTINENTAL JPC4M2 POLYESTER FILM

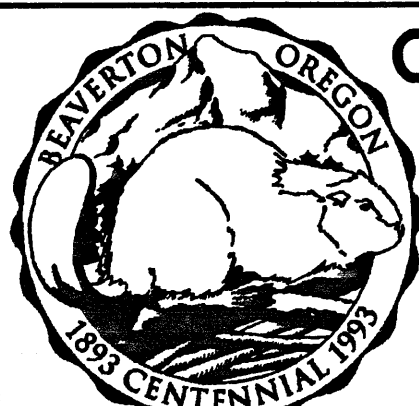
CITY OF BEAVERTON
DEPARTMENT OF ENGINEERING
SURVEY SECTION

4755 S.W. GRIFFITH DRIVE
P.O. BOX 4755
BEAVERTON, OR 97006-4755
(503) 526-2430
FAX (503) 526-2550

**PRIMARY
CONTROL NETWORK**

DATE: 5/22/01
REGISTERED
PROFESSIONAL
LAND SURVEYOR
LEE W. MOORE
2404
EXPIRES: 12/31/2002

PROJECT NUMBER
3626
AS-BUILT NUMBER
QUARTER SECTION NO.
2710 3221 4221 4210
SHEET NUMBER
10F 3



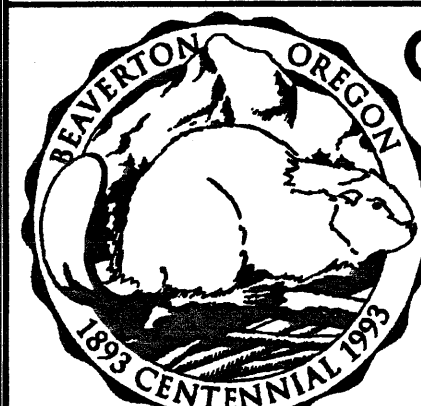
CITY OF BEAVERTON
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PROJECT NUMBER
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AS-BUILT NUMBER
QUARTER SECTION NO.
2710 3221 4221 4210
SHEET NUMBER
2 OF 3



CITY OF BEAVERTON
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DATE: 5/22/01
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2404
EXPIRES: 12/31/2002

PROJECT NUMBER
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QUARTER SECTION NO.
2710 3221 4221 4210
SHEET NUMBER
3 OF 3

RECORD OF SURVEY FOR THE
CITY OF BEAVERTON
ESTABLISHING A
PRIMARY CONTROL NETWORK
SITUATED IN THE
SOUTH HALF OF TOWNSHIP 1 NORTH, RANGE 1 WEST AND IN TOWNSHIP 1 SOUTH, RANGE 1 WEST
WILLAMETTE MERIDIAN
OREGON
22 MAY 2001

NARRATIVE

PURPOSE:
THE PURPOSE OF THIS SURVEY WAS TO ESTABLISH PRIMARY HORIZONTAL
AND VERTICAL CONTROL TO BE USED BY FURTHER DENSIFICATION SURVEYS
AND TO BE USED BY CITY STAFF, CONTRACTORS, CONSULTANTS AND OTHERS
REQUIRED BY THE CITY TO PROVIDE WORK BASED UPON THE OREGON
STATE PLANE COORDINATE SYSTEM.

EQUIPMENT:
THREE "LOCUS" RECEIVERS WERE USED IN THE FIELD AND A "G-12"
RECEIVER WAS USED FOR THE BASE STATION. ALL EQUIPMENT WAS
MANUFACTURED BY ASHTECH, INC.

SOFTWARE:
ASHTECH "GSSS" SOFTWARE WAS USED TO COLLECT DATA AT THE BASE
STATION. ASHTECH "LOCUS V1.2" SOFTWARE WAS USED TO REDUCE DATA
INTO VECTORS. "STARNET V6.0.10" ADJUSTMENT SOFTWARE WAS USED TO
ADJUST THE VECTOR DATA AND COMPUTE COORDINATES.

ADJUSTMENT STATISTICAL SUMMARY				
CONVERGENCE	ITERATIONS	4		
NUMBER OF STATIONS	16			
NUMBER OF OBSERVATIONS	399			
NUMBER OF UNKNOWN	35			
NUMBER OF REDUNDANT OBS	366			
OBSERVATION	COUNT	SUM SQUARES	OF STORES	ERROR
GPS DELTAS	399	410.91	1.06	
TOTAL	399	410.91	1.06	
ADJUSTMENT PASSED THE CHI SQUARE TEST AT 5% LEVEL				

STATION COORDINATE STANDARD DEVIATIONS (FEET/IN)				
STATION	N	E	ELEV	
4333	0.00416	0.00399	0.00000	
4340	0.00504	0.00500	0.00000	
6100	0.00565	0.00538	0.00000	
6180	0.00641	0.00582	0.00000	
6210	0.00611	0.00547	0.00000	
6270	0.00588	0.00600	0.00000	
185SW	0.00599	0.00615	0.00000	
BTON	0.00408	0.00407	0.00000	
CHAS	0.00000	0.00000	0.00000	
LILY	0.00639	0.00584	0.00000	
MEENA	0.00468	0.00470	0.0176	
NELSON	0.00000	0.00000	0.00000	
NORA	0.00645	0.00601	0.03488	
OSFR	0.00463	0.00492	0.02747	
PT571	0.00555	0.00528	0.00000	
SEXTON	0.00492	0.00472	0.00000	

STATION COORDINATE ERROR ELLIPSES (FEET/IN)
CONFIDENCE REGION = 95%

STATION	SEMI-MAJOR AXIS	SEMI-MINOR AXIS	AZIMUTH OF MAJOR AXIS	ELEV
4333	0.01061	0.00929	35-40	0.00000
4340	0.01286	0.01158	42-55	0.00000
6100	0.01434	0.01262	33-37	0.00000
6180	0.01598	0.01392	22-19	0.00000
6210	0.01545	0.01283	26-30	0.00000
6270	0.01530	0.01374	50-11	0.00000
185SW	0.01627	0.01331	48-50	0.00000
BTON	0.01066	0.00924	44-11	0.00000
CHAS	0.00000	0.00000	0-00	0.00000
LILY	0.01619	0.01368	26-32	0.00000
MEENA	0.01218	0.01074	45-52	0.03451
NELSON	0.00000	0.00000	0-00	0.04858
NORA	0.01631	0.01415	30-12	0.05837
OSFR	0.01242	0.01141	51-30	0.05385
PT571	0.01411	0.01235	33-34	0.00000
SEXTON	0.01249	0.01108	34-49	0.00000

NAD83(98) - ADJUSTED COORDINATES (FEET/IN)

STATION	N	E	ELEV	DESCRIPTION
4333	678900.7266	7625505.0897	697.572	BRASS CAP - SEE CS# 27.711, SHEET 7 & 9
4340	678572.7254	7624412.4791	637.547	BRASS CAP - SEE CS# 25.074, SHEET 3
6100	680241.4438	7602053.7708	270.330	BRASS CAP - SEE CS# GC-36, SHEET 3 & 8
6180	689456.4372	7601111.6383	241.330	BRASS CAP - SEE CS# GC-36, SHEET 5 & 8
6210	689456.4372	7601111.6383	232.310	BRASS CAP - SEE CS# GC-36, SHEET 5 & 8
6270	691282.2299	7595504.2791	228.100	BRASS CAP - SEE CS# GC-36, SHEET 6 & 9
185SW	682434.4430	7595504.2791	248.260	BRASS CAP - SEE CS# GC-36, SHEET 6 & 9
BTON	671586.8678	7612980.8748	226.165	CITY OF BEAVERTON BASE STATION
CHAS	697115.8270	7563791.6170	190.427	BRASS CAP - NOS PID RD421
LILY	654376.1027	7605096.5234	218.512	BRASS CAP - THIS SURVEY, SEE PAGE 3
MEENA	659791.1840	7595241.4012	766.5	BRASS CAP - THIS SURVEY, SEE PAGE 3
NELSON	660026.9177	7600348.1731	484.1	BRASS CAP - THIS SURVEY, SEE PAGE 3
NORA	659795.1979	7616085.8184	236.9	"COB" ALUM CAP - CIRCA '86, SEE THIS SURVEY, PAGE 3
OSFR	674556.5494	7595037.1641	212.466	BRASS CAP - NOS PID RD457
PT571	661583.9740	7605900.1800	411.799	BRASS CAP - THIS SURVEY, SEE PAGE 3
SEXTON				

ADJUSTED STATION INFORMATION				
STATION	LATITUDE	LONGITUDE	ELLIP HT	GEOID HT
4333	45-30-24.552035	122-44-57.688369	622.8676	-74.8044
4340	45-30-21.014114	122-45-12.896568	562.7231	-74.8239
6100	45-31-22.422105	122-46-57.128842	195.3313	-74.5987
6180	45-31-57.782383	122-50-30.973796	166.3168	-75.0132
6210	45-32-01.884786	122-50-44.384098	157.2963	-75.0137
6270	45-32-18.289464	122-52-03.876902	154.0908	-75.0092
185SW	45-32-29.671448	122-52-03.848319	173.2650	-74.9950
BTON	45-29-08.886423	122-47-50.564411	151.1184	-75.0466
CHAS	45-31-27.756718	122-50-27.425246	115.7890	-74.6361
LILY	45-26-16.793302	122-49-34.236081	143.4841	-75.0279
MEENA	45-27-07.413571	122-51-54.619812	691.4524	-75.0299
NELSON	45-28-09.596037	122-43-12.116416	332.6930	-74.7748
NORA	45-27-11.209921	122-50-43.104863	409.0730	-75.0468
OSFR	45-27-13.374200	122-47-02.319149	163.9371	-75.0068
PT571	45-29-37.029526	122-52-03.717808	137.3399	-75.1261
SEXTON	45-27-28.161455	122-49-25.876694	336.7350	-75.0640
AVERAGE:				-74.9637

CONVERGENCE ANGLES (DMS) AND GRID FACTORS AT STATIONS
(GRID AZIMUTH - GEODETIC AZIMUTH - CONVERGENCE)
(ELEVATION FACTOR INCLUDES A GEODID HEIGHT CORRECTION AT EACH STATION)

STATION	CONVERGENCE ANGLE	SCALE	X ELEVATION	COMBINED
4333	-1-35-42.77	0.99991197	0.99997024	0.99988221
4340	-1-35-53.55	0.99991311	0.99997311	0.99988498
6100	-1-38-32.58	0.99991366	0.99999067	0.99990433
6180	-1-39-39.13	0.99991474	0.99999205	0.99990679
6210	-1-39-48.64	0.99991486	0.99999248	0.99990735
6270	-1-40-45.02	0.99991537	0.99999264	0.99990801
185SW	-1-40-44.89	0.99991573	0.99999172	0.99990745
BTON	-1-37-45.37	0.99990987	0.99999278	0.99990265
CHAS	-1-45-59.57	0.99991382	0.99999447	0.99990829
LILY	-1-38-58.89	0.99990561	0.99999314	0.99990875
MEENA	-1-40-38.45	0.99990679	0.99999696	0.99987375
NELSON	-1-34-27.90	0.99990832	0.99999810	0.99989243
NORA	-1-38-47.73	0.99990688	0.99990845	0.99988735
OSFR	-1-37-11.15	0.99999217	0.99989910	0.99989910
PT571	-1-40-44.90	0.99991064	0.99999344	0.99990407
SEXTON	-1-38-52.96	0.99990729	0.99989391	0.99989120
PROJECT AVERAGES:				
	-1-39-05.85	0.99991090	0.99998652	0.99989742

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SOUTH HALF OF TOWNSHIP 1 NORTH, RANGE 1 WEST AND IN TOWNSHIP 1 SOUTH, RANGE 1 WEST
WILLAMETTE MERIDIAN
OREGON
22 MAY 2001

LOCATION DESCRIPTIONS

LILY:

A 2 INCH DIAMETER, DOMED, BRASS DISK, STAMPED "CITY OF BEAVERTON LILY". THE MONUMENT IS LOCATED IN A CONCRETE TRAFFIC ISLAND, IN THE SOUTHWEST QUADRANT OF THE INTERSECTION OF S.W. MURRAY ROAD AND S.W. SCHOLLS FERRY ROAD. THE DISK IS LOCATED 18.3 FEET SOUTH OF THE NORTH CURB OF THE TRAFFIC ISLAND. THE DISK IS ALSO 17.4 FEET SOUTHWESTERLY OF A TRAFFIC SIGNAL POLE SITUATED NEAR THE NORTHEAST CORNER OF THE TRAFFIC ISLAND.

MEENA:

A 3 1/2 INCH DIAMETER BRASS DISK, SET INSIDE A CAST IRON MONUMENT BOX, STAMPED "WASHINGTON COUNTY SURVEYOR PRIMARY CONTROL NETWORK UNLAWFUL TO DISTURB MEENA 2001". THE MONUMENT IS LOCATED AT 18250 S.W. KEMMER ROAD (500 FEET WESTERLY OF THE LOCKED GATE, GO ALONG THE GRAVEL DRIVEWAY, A DISTANCE OF 404 FEET, TO THE MONUMENT, 3 FEET NORTH OF THE EDGE OF THE DRIVEWAY. A KEY TO THE GATE MAY BE OBTAINED FROM THE WASHINGTON COUNTY SURVEYOR'S OFFICE OR THE CITY LAND SURVEYOR AT THE CITY OF BEAVERTON.

NORA:

A 2 INCH DIAMETER, DOMED, BRASS DISK, STAMPED "CITY OF BEAVERTON NORA". THE MONUMENT IS SET IN THE TOP OF THE NORTH CURB (AT THE CENTER LINE OF A STORM SEWER CATCH BASIN). THE MONUMENT IS LOCATED 387.7 FEET WESTERLY OF A MONUMENT (IN A MONUMENT BOX) AT THE INTERSECTION OF S.W. NORA ROAD AND S.W. SEXTON MOUNTAIN DRIVE.

OSFR:

A 1 1/2 INCH DIAMETER ALUMINUM CAP ON A 5/8 INCH IRON ROD, SET IN EPOXY CEMENT, STAMPED "COB OSFR WS". THE MONUMENT WAS SET AS A TRAVERSE POINT IN 1986. THE MONUMENT IS SET IN THE ASPHALT SHOULDER OF S.W. SCHOLLS FERRY ROAD, 3.8 FEET EAST OF A METAL GAUO RAIL. THE MONUMENT IS 488 FEET NORTHERLY OF A CATCH BASIN LOCATED AT THE NORTHWEST CORNER OF THE BRIDGE OVER STATE HIGHWAY 217. THE MONUMENT IS 45 FEET SOUTHERLY OF THE SOUTHEAST CORNER OF A CONCRETE PAD SUPPORTING A TRAFFIC SIGNAL CONTROLLER CABINET.

SEXTON:

A 2 INCH DIAMETER, DOMED, BRASS DISK, STAMPED "CITY OF BEAVERTON SEXTON". THE MONUMENT IS SET ON THE TOP OF A 5 MILLION GALLON, CIRCULAR CONCRETE, WATER TANK. THE TANK IS LOCATED ACROSS FROM 8510 THROUGH 8540 S.W. MAVERICK TERRACE BEHIND THE WILLOW MINI PARK. THE MONUMENT IS LOCATED 18.7 FEET FROM THE SOUTHEASTERLY EDGE OF THE TANK. THE MONUMENT IS NORTHEASTERLY, 35 FEET, FROM THE NORTHEAST CORNER OF A STEEL ACCESS DOOR. ACCESS CAN BE OBTAIN FROM THE CITY OF BEAVERTON WATER DEPARTMENT.